



UNITED STATES PATENT AND TRADEMARK OFFICE

jen

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,417	03/23/2004	R. Shane Fazio	10030899-1	3854
57299	7590	08/28/2006		
AVAGO TECHNOLOGIES, LTD. P.O. BOX 1920 DENVER, CO 80201-1920				
			EXAMINER LEWIS, MONICA	
			ART UNIT 2822	PAPER NUMBER

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/807,417	Applicant(s) FAZZIO, R. SHANE	
	Examiner Monica Lewis	Art Unit 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 12-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 20 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the amendment filed June 5, 2006.

Response to Arguments

2. Applicant's arguments with respect to claims 1-11 and 20-23 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claim 1 is objected to because of the following informalities: a) it appears that two words maybe missing. For example, it appears that the claim should be read as follows: a) "the hermetically sealed cavity" not "the hermetically seal;" and b) "bonding agent and at least one of two surfaces" not "bonding agent at least one of two surfaces." Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what is meant by the following: a) "further surrounds at least a portion of the gasket" (See Claim 5). In claim 1, Applicant discloses that the "caulking agent surrounding...at least one of two surfaces of the gasket." Therefore, it is not clear how the caulking agent "further surrounds at least a portion of the gasket." If this limitation is intended to indicate that the caulking agent further surrounds the other of the at least two surfaces of the

Art Unit: 2822

gasket then it is suggested that the claim be amended to recite that the caulking agent “further surrounds the other of the at least two surfaces of the gasket.”

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, 5, 6, 8, 21 and 22, as far as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Guenther et al. (U.S. Publication No. 2004/0211966) and McCormick et al. (U.S. Publication No. 2003/0143423).

In regards to claim 1, Applicant's Prior Art (“APA”) discloses the following:

a) a device chip including a substrate (20) and at least one circuit element (24) fabricated on the substrate (For Example: See Figure 2);

b) a cap (30) over said device chip said cap including a gasket (32) (For Example: See Figure 2);

c) bonding agent (34) bonding said cap to said device chip defining a hermitically sealed cavity having an inner and outer surface (For Example: See Figure 2); and

d) cavity (26) having an inner surface and an outer surface (For Example: See Figure 2).

In regards to claim 1, APA fails to disclose the following:

a) a caulking agent at least partially surrounding said bonding agent reinforcing the seal.

However, Guenther et al. (“Guenther”) discloses a caulking agent (380) at least partially surrounding said bonding agent (375) (For Example: See Figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the

Art Unit: 2822

semiconductor of APA to include a caulking agent at least partially surrounding said bonding agent as disclosed in Guenther because it aids in providing protection from atmospheric constituents (For Example: See Paragraph 23)(Note: Merriam-Webster defines caulking as a material used to caulk and defines caulk as to stop up and make tight against leakage. Therefore, a caulking agent would be a material that is used to stop up or make tight against leakage. Guenther discloses a hermetic sealing structure that protects the device from atmospheric constituents (For Example: Paragraph 23 and Paragraph 36).

Additionally, since APA and Guenther are both from the same field of endeavor, the purpose disclosed by Guenther would have been recognized in the pertinent art of APA.

b) caulking agent surrounding the gasket on at least one of two surfaces, the two surfaces being the inner and outer surface.

However, McCormick et al. ("McCormick") discloses a caulking agent (26) surrounding the gasket (22) on at least one of two surfaces, the two surfaces being the inner and outer surface (For Example: See Figure 1A). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of APA to include a caulking agent surrounding the gasket on at least one of two surfaces, the two surfaces being the inner and outer surface as disclosed in McCormick because it aids in providing protection from the atmosphere (For Example: See Paragraph 32)(Note: Merriam-Webster defines caulking as a material used to caulk and defines caulk as to stop up and make tight against leakage. Therefore, a caulking agent would be a material that is used to stop up or make tight against leakage. McCormick discloses a hermetic sealing structure that protects the device from the atmosphere (For Example: Paragraph 39).

Art Unit: 2822

Additionally, since APA and McCormick are both from the same field of endeavor, the purpose disclosed by McCormick would have been recognized in the pertinent art of APA.

In regards to claim 2, APA discloses the following:

- a) the bonding agent comprises gold (For Example: See Paragraph 4).

In regards to claim 3, APA fails to disclose the following:

- a) the caulking agent is selected from a group consisting of amorphous fluorocarbon polymer, polyimide materials, and benzocyclobutene based materials.

However, Guenther discloses a caulking agent that is selected from a group consisting of amorphous fluorocarbon polymer, polyimide materials, and benzocyclobutene based materials (For Example: See Paragraph 23). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of APA to include a caulking agent that is selected from a group consisting of amorphous fluorocarbon polymer, polyimide materials, and benzocyclobutene based materials as disclosed in Guenther because it aids in providing protection from atmospheric constituents (For Example: See Paragraph 23)(Note: Merriam-Webster defines caulking as a material used to caulk and defines caulk as to stop up and make tight against leakage. Therefore, a caulking agent would be a material that is used to stop up or make tight against leakage. Guenther discloses a hermetic sealing structure that protects the device from atmospheric constituents (For Example: Paragraph 23 and Paragraph 36).

Additionally, since APA and Guenther are both from the same field of endeavor, the purpose disclosed by Guenther would have been recognized in the pertinent art of APA.

In regards to claim 6, APA fails to disclose the following:

- a) the caulking agent surrounds at least a portion of the cap.

However, Guenther discloses a caulking agent (380) that surrounds at least a portion of the cap (360) (For Example: See Figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of APA to include a caulking agent that surrounds at least a portion of the cap as disclosed in Guenther because it aids in providing protection from atmospheric constituents (For Example: See Paragraph 23)(Note: Merriam-Webster defines caulking as a material used to caulk and defines caulk as to stop up and make tight against leakage. Therefore, a caulking agent would be a material that is used to stop up or make tight against leakage. Guenther discloses a hermetic sealing structure that protects the device from atmospheric constituents (For Example: Paragraph 23 and Paragraph 36).

Additionally, since APA and Guenther are both from the same field of endeavor, the purpose disclosed by Guenther would have been recognized in the pertinent art of APA.

In regards to claim 8, APA fails to disclose the following:

a) cap includes gasket having an inner surface and an outer surface and wherein the caulking agent covers the outer surface of the gasket.

However, McCormick discloses a cap that includes gasket having an inner surface and an outer surface and wherein the caulking agent covers surface of the gasket (For Example: See Figure 1A). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of APA to include a cap that includes gasket having an inner surface and an outer surface and wherein the caulking agent covers the outer surface of the gasket as disclosed in McCormick because it aids in providing protection from the atmosphere (For Example: See Paragraph 32)(Note: Merriam-Webster defines caulking as a material used to caulk and defines caulk as to stop up and make tight against leakage. Therefore,

Art Unit: 2822

a caulking agent would be a material that is used to stop up or make tight against leakage.

McCormick discloses a hermetic sealing structure that protects the device from the atmosphere (For Example: Paragraph 39).

Additionally, since APA and McCormick are both from the same field of endeavor, the purpose disclosed by McCormick would have been recognized in the pertinent art of APA.

In regards to claim 21, APA fails to disclose the following:

a) a caulking agent extends from said cap to said device.

However, McCormick discloses a caulking agent that extends from said cap to said device (For Example: See Figure 1A). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of APA to include a caulking agent that extends from said cap to said device as disclosed in McCormick because it aids in providing protection from the atmosphere (For Example: See Paragraph 32)(Note: Merriam-Webster defines caulking as a material used to caulk and defines caulk as to stop up and make tight against leakage. Therefore, a caulking agent would be a material that is used to stop up or make tight against leakage. McCormick discloses a hermetic sealing structure that protects the device from the atmosphere (For Example: Paragraph 39).

Additionally, since APA and McCormick are both from the same field of endeavor, the purpose disclosed by McCormick would have been recognized in the pertinent art of APA.

In regards to claim 22, APA fails to disclose the following:

a) the caulking agent is adjacent to said bonding agent.

However, Guenther discloses a caulking agent adjacent to said bonding agent (For Example: See Figure 3). It would have been obvious to one having ordinary skill in the art at the

Art Unit: 2822

time the invention was made to modify the semiconductor of APA to include a caulking agent that is adjacent as disclosed in Guenther because it aids in providing protection from atmospheric constituents (For Example: See Paragraph 23)(Note: Merriam-Webster defines caulking as a material used to caulk and defines caulk as to stop up and make tight against leakage. Therefore, a caulking agent would be a material that is used to stop up or make tight against leakage. Guenther discloses a hermetic sealing structure that protects the device from atmosphere constituents (For Example: Paragraph 23 and Paragraph 36).

Additionally, since APA and Guenther are both from the same field of endeavor, the purpose disclosed by Guenther would have been recognized in the pertinent art of APA.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Guenther et al. (U.S. Publication No. 2004/0211966), McCormick et al. (U.S. Publication No. 2003/0143423) and Kikushima et al. (U.S. Publication No. 2003/0061693).

In regards to claim 4, APA fails to disclose the following:

a) the circuit element is a resonator.

However, Kikushima et al. ("Kikushima") discloses a semiconductor device that has a resonator (3) (For Example: See Figure 1b). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of APA to include a resonator as disclosed in Kikushima because it aids in providing a communication device (For Example: See Paragraph 4).

Additionally, since APA and Kikushima are both from the same field of endeavor, the purpose disclosed by Kikushima would have been recognized in the pertinent art of APA.

Art Unit: 2822

9. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Guenther et al. (U.S. Publication No. 2004/0211966), McCormick et al. (U.S. Publication No. 2003/0143423) and Geefay et al. (U.S. Patent No. 6,787,897).

In regards to claim 5, APA fails to disclose the following:

a) the caulking agent further surrounds at least a portion of the gasket.

However, Geefay et al. ("Geefay") discloses a semiconductor device that has a caulking agent (401) that further surrounds at least a portion of the gasket (201) (For Example: See Figure 4C). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of APA to include a semiconductor device that has a caulking agent that further surrounds at least a portion of the gasket as disclosed in Geefay because it aids in routing signal leads (For Example: See Column 3 Lines 53-56).

Additionally, since APA and Geefay are both from the same field of endeavor, the purpose disclosed by Geefay would have been recognized in the pertinent art of APA.

In regards to claim 7, APA fails to disclose the following:

a) cap includes gasket having an inner surface and an outer surface and wherein the caulking agent covers the inner surface of the gasket.

However, Geefay discloses a semiconductor device that has a cap (203) that includes a gasket (201) having an inner surface and an outer surface and wherein the caulking agent (401) covers the inner surface of the gasket (For Example: See Figure 4C). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of APA to include a semiconductor device that has a cap that includes a gasket having an inner surface and an outer surface and wherein the caulking agent covers the inner

Art Unit: 2822

surface of the gasket as disclosed in Geefay because it aids in routing signal leads (For Example: See Column 3 Lines 53-56).

Additionally, since APA and Geefay are both from the same field of endeavor, the purpose disclosed by Geefay would have been recognized in the pertinent art of APA.

10. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Guenther et al. (U.S. Publication No. 2004/0211966), McCormick et al. (U.S. Publication No. 2003/0143423) and Goldmann et al. (U.S. Patent No. 6,459,160).

In regards to claim 9, APA fails to disclose the following:

a) comprises multiple layers of the caulking agent.

However, Goldmann et al. ("Goldmann") discloses a semiconductor device that comprises multiple layers of the caulking agent (142, 152 and 54) (For Example: See Figure 1b). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of APA to include multiple layers of the caulking agent as disclosed in Goldmann because it aids in providing protection for the device (For Example: See Column 7 Lines 30-34).

Additionally, since APA and Goldmann are both from the same field of endeavor, the purpose disclosed by Goldmann would have been recognized in the pertinent art of APA.

In regards to claim 10, APA fails to disclose the following:

a) multiple layers of the caulking agent comprises layers having different caulking material relative to other layers of the caulking agent.

However, Goldmann discloses multiple layers of the caulking agent comprises layers having different caulking material relative to other layers of the caulking agent (For Example: See Figure 1b). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of APA to include multiple layers of the caulking agent comprises layers having different caulking material relative to other layers of the caulking agent as disclosed in Goldmann because it aids in providing protection for the device (For Example: See Column 7 Lines 30-34).

Additionally, since APA and Goldmann are both from the same field of endeavor, the purpose disclosed by Goldmann would have been recognized in the pertinent art of APA.

11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art in view of Guenther et al. (U.S. Publication No. 2004/0211966) and McCormick et al. (U.S. Publication No. 2003/0143423) and McHerron et al. (U.S. Patent No. 6,046,074).

In regards to claim 11, APA fails to disclose the following:

a) multiple layers of the caulking agent comprises layers have the same caulking material relative to other layers of the caulking agent.

However, McHerron et al. ("McHerron") discloses a caulking agent that comprises layers that have the same caulking material relative to other layers of the caulking agent (For Example: See Figure 5). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of APA to include a caulking agent that comprises layers having the same caulking material relative to other layers of the caulking agent as disclosed in McHerron because it aids in providing good strength (For Example: See Column 4 Lines 40-50).

Additionally, since APA and McHerron are both from the same field of endeavor, the purpose disclosed by McHerron would have been recognized in the pertinent art of APA.

Allowable Subject Matter

12. Claims 20 and 23 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 571-272-1838. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on 571-272-2429. The fax phone number for the organization

Art Unit: 2822

where this application or proceeding is assigned is 571-273-8300 for regular and after final communications.

ML

August 21, 2006

A handwritten signature in black ink, consisting of several loops and a long horizontal stroke at the end.